



We create chemistry

October 3, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

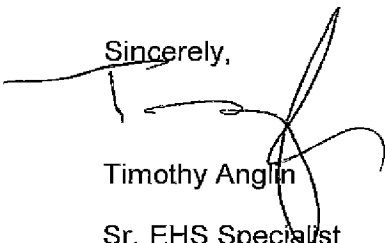
Dear Mr. Becker,

Please find enclosed the report on the September 14, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 5 minutes. The release began at 0630 and ended at 0635.
3. The NOx discharged out of Rotary Calciner #4 (P009) and Rotary Calciner #5 (P080).
4. It is calculated that 2.3 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result setting of the sodium sulfide concentration.
6. To end the release site personnel raised the concentration of the sodium sulfide.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



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August 12, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

Dear Mr. Becker,

Please find enclosed the report on the August 9, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 17 minutes. The release began at 1115 and ended at 1132.
3. The NOx discharged out of Rotary Calciner #4 (P009) and Rotary Calciner #1 (P010).
4. It is calculated that 9.48 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result improper valve alignment which cause one calciner to vent to the incorrect control device and the other to have insufficient suction.
6. To end the release site personnel correctly set the valve.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a large, sweeping loop at the end.

Timothy Anglin

Sr. EHS Specialist



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July 29, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

Dear Mr. Becker,

Please find enclosed the report on the July 24, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 10 minutes. The release began at 1000 and ended at 1000.
3. The NOx discharged out of Rotary Calciner #4 (P009). P010
4. It is calculated that 0.56 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of a scrubber caustic valve failure which altered the scrubber solution.
6. To end the release site personnel adjusted the scrubber solution and repaired the valve.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin", with a large, stylized flourish extending from the end of the signature.

Timothy Anglin

Sr. EHS Specialist



We create chemistry

July 29, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

Dear Mr. Becker,

Please find enclosed the report on the July 24, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 10 minutes. The release began at 1000 and ended at 1000.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 0.56 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of a scrubber caustic valve failure which altered the scrubber solution.
6. To end the release site personnel adjusted the scrubber solution and repaired the valve.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is written over the printed name and title.

Timothy Anglin

Sr. EHS Specialist



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June 17, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

Dear Mr. Becker,

Please find enclosed the report on the June 9, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 5 minutes. The release began at 1445 and ended at 1450.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 0.4 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of a pH probe failure on the third stage of the TriMer scrubber.
6. To end the release site personnel replaced the damaged pH probe.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is fluid and cursive, with a large loop at the end.

Timothy Anglin

Sr. EHS Specialist



June 17, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

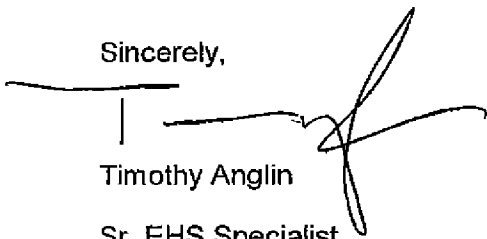
Dear Mr. Becker,

Please find enclosed the report on the June 1, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 15 minutes. The release began at 1430 and ended at 1445.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 1.85 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the scrubber having the incorrect amount of sodium sulfide solution.
6. To end the release site personnel reset the sodium sulfide level.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



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May 3, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

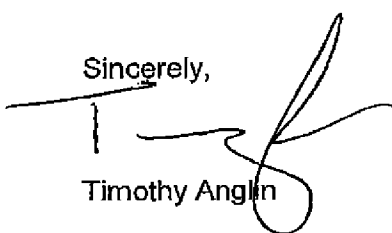
Dear Mr. Becker,

Please find enclosed the report on the April 23, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 5 minutes. The release began at 1330 and ended at 1335.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 1.18 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the scrubber having the incorrect amount of sodium sulfide solution.
6. To end the release site personnel reset the sodium sulfide level.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



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April 11, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

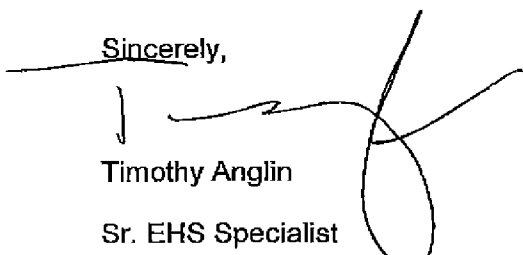
Dear Mr. Becker,

Please find enclosed the report on the April 7, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 15 minutes. The release began at 1415 and ended at 1430.
3. The NOx discharged out of Rotary Calciners #1 and #4 (P009 and P010).
4. It is calculated that 3.61 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the scrubber running out of sodium sulfide solution.
6. To end the release site personnel refilled the scrubber with sodium sulfide.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



April 11, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Report

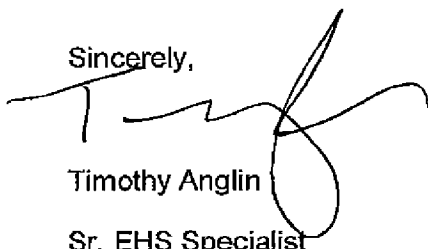
Dear Mr. Becker,

Please find enclosed the report on the April 4, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 10 minutes. The release began at 0345 and ended at 0355.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 0.66 pounds of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the scrubber running out of sodium sulfide solution.
6. To end the release site personnel refilled the scrubber with sodium sulfide.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin
Sr. EHS Specialist



We create chemistry

April 6, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Calciner #4, March 25, 2016

Dear Mr. Becker,

Please find enclosed the report on the March 25, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 163 minutes. The release began at 0730 and ended at 1013.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated less than 1 pound of NOx were released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of an improperly set valve on the emissions control duct work.
6. To end the release site personnel set the valve correctly and the release ended.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a large loop at the end.

Timothy Anglin
Sr. EHS Specialist

BASF Corporation
120 Pine Street
Elyria, Ohio 44035-5228 USA

BASF_114_000130



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February 19, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Calciner #4, February 10, 2016

Dear Mr. Becker,

Please find enclosed the report on the February 10, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 60 minutes. The release began at approximately 1145 and ended at 1245.
3. The NOx discharged out of Rotary Calciner #4 (P080).
4. It is calculated less than 1 pound of NOx was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result the sodium sulfide valve not being turned on for the TriMer scrubber.
6. To end the release site personnel shut down the calciner and sodium sulfide was added to the scrubber.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin".

Timothy Anglin

Sr. EHS Specialist



February 26, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Malfunction Report, February 07, 2016

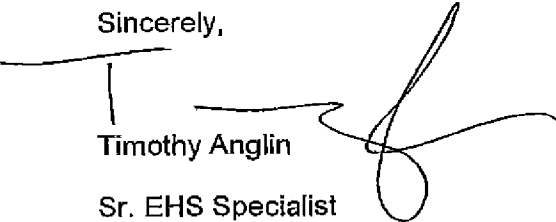
Dear Mr. Becker,

Please find enclosed the report on the February 07, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 20 minutes. The release began at approximately 2100 and ended at 2120.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated less than 1 pound of NOx was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of low sodium sulfide levels in the TriMer scrubber.
6. To end the release site personnel shut down the calciner and sodium sulfide was added to the scrubber.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



February 19, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Calciner #3, January 22, 2016

Dear Mr. Becker,

Please find enclosed the report on the January 22, 2016 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 80 minutes. The release began at approximately 0945 and ended at 1105.
3. The NOx discharged out of Rotary Calciner #3 (P080).
4. It is calculated less than 2.7 pounds of NOx was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of bypass valve failure which led to a loss of suction.
6. To end the release site personnel shut down the calciner and repaired the valve.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

Timothy Anglin

Sr. EHS Specialist



January 11, 2016

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: PM Release, Calciner #5, January 10, 2016

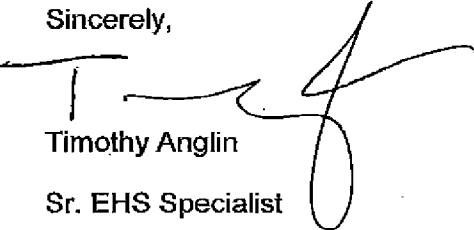
Dear Mr. Becker,

Please find enclosed the report on the January 10, 2016 PM release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH 44035.
2. The duration of the release was 238 minutes. The release began at approximately 1702 and ended at 2100.
3. The PM discharged out of (P080).
4. It is calculated less than one pound of PM (Catoxid) was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of bag in the dust collector being installed incorrectly. Which caused material to clog an after filter.
6. To end the release site personnel shut down the calciner and fixed the dust collector.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin
Sr. EHS Specialist



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December 21, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, RC# 2 , December 3, 2015

Dear Mr. Becker,

Please find enclosed the report on the December 3, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was five minutes. The release began at approximately 0740 and ended at 0755.
3. The NOx discharged out of P102.
4. It is calculated that less than one pound of NOx was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the sodium sulfide solution being low in stage two and three of the TriMer scrubber. Solution was added and the TriMer returned to normal.
6. Solution was added and the TriMer returned to normal.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin".

Timothy Anglin
Sr. EHS Specialist



We create chemistry

December 21, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, RC# 5, November 26, 2015

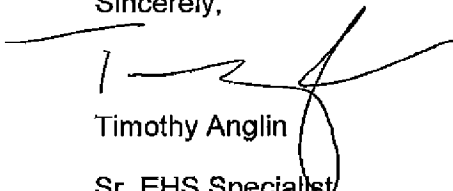
Dear Mr. Becker,

Please find enclosed the report on the November 26, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was five minutes. The release began at approximately 0815 and ended at 0820.
3. The NOx discharged out of P080.
4. It is calculated that less than one pound of NOx was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the sodium sulfide solution being low in stage two and three of the TriMer scrubber. Solution was added and the TriMer returned to normal.
6. Solution was added and the TriMer returned to normal.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist



December 2, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: PM Release, Copper Calciner #1, November 17, 2015

Dear Mr. Kelley,

Please find enclosed the report on the November 17, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was less than one minute. The release began at approximately 0800 and ended at 0801.
3. The PM discharged out of (P006).
4. It is calculated that 25 pounds of PM (Cu 2046, a copper chrome catalyst intermediate) was released. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of several bags in the dust collector being installed incorrectly. Which caused material to clog an after filter. When the housing for the after filter was opened the material dropped to the ground.
6. To end the release site personnel shut down the calciner and fixed the dust collector.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

Timothy Anglin

Sr. EHS Specialist



We create chemistry

November 16, 2015

Ohio EPA, DERR – ER
Lazarus Government Center
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049
Attn: ER Records Management

Re: NOx Release, November 5 – 6, 2015

Dear Sir / Madam,

Please find enclosed the report on the November 5 - 6, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH. Contact number for the facility is 440-329-2568. The owner and operator of the facility is the BASF Corporation.
2. The duration of the release was approximately 7 hours. The release began at approximately 1830 on 11/5/15 and ended at 0130 on 11/6/15. The release was the result of a process being vented to the wrong control device. When this was discovered the process was vented to the correct control device and the release ended. The OEPA spill report number for this incident is 1511-47-2392.
3. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH. Latitude – 41.370039; Longitude – 82.101811.
4. The event discharged 47.6 pounds of NOx.
5. The NOx dispersed in to the air. There was no impact to land, navigable waters, wildlife or vegetation. No human health issues were observed, nor were any evacuations required.
6. There are no monitoring devices for NOx on the discharge point for this release. The amount released is calculated.
7. No material released was recovered.
8. The duration of the release was approximately 7 hours. The release began at approximately 1830 on 11/5/15 and ended at 0130 on 11/6/15. The release was the result of a process being vented to the wrong control device. Corrective action has been implemented.
9. NOx is a toxic gas. It readily disperses into the atmosphere reducing its ability to cause health effects.
10. The site permit Facility ID # is 02-47-04-0195. The source was P102, rotary calciner #2.
11. The duration of the release was approximately 7 hours. The release began at approximately 1830 on 11/5/15 and ended at 0130 on 11/6/15. The release was the result of a process being vented to the wrong control device. After it was determined that the site had a release a process engineer was assigned to determine the amount of material released. When these calculations were completed, it was determined that the site had a reportable release. At that time the National Response Center and Ohio EPA were notified.
12. No additional documentation will accompany this report.

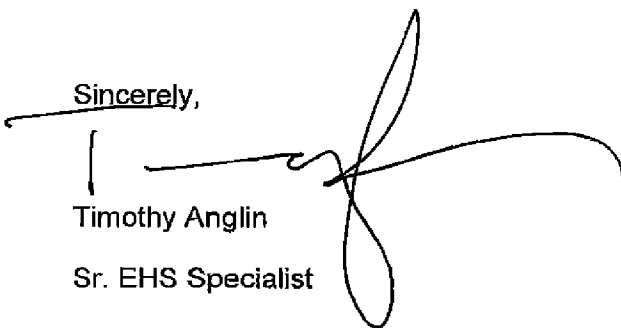


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13. The release was caused by employee error. The employee did not check to see if the calciner was routed to the correct control device.
14. There was no economic impact from this event.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,



Timothy Anglin

Sr. EHS Specialist

Calculation of amount of NOx Released during 11/5/2015 Release Event

Product: D-0768 E 1/16

Equipment: #2 Rotary Calcliner

Basis: 1. The source of NOx was 520 lbs/hour x 6 hours = 3,240 lbs of fired product that went through the calcliner while venting to the F-1 Scrubber over about 6 hours.

2. NOx a 50/50 mix of NO and NO2.

3. NO2 absorbed readily by water and converted to nitric acid (HNO3) and some NO (see below).

4. Assume 75% of NO2 was absorbed by water in F-1 scrubber.

Step 1

Calculate lbs NO and NO2 per batch of D-0768, and fired batch weight

Description	Source	Symbol	Units	Amount in Mix Batch (lbs)	Amount in Fired Batch (lbs)
Amount of copper carbonate and alumina in recipe	Recipe	M_{Base}	lbs	1,120	847
Amount of HNO3 in recipe	Recipe	M_{HNO3}	lbs	32	0
HNO3 MW	Constant	MW_{HNO3}	lb/lbmole	63	
HNO3 Moles	M_{HNO3} / MW_{HNO3}	N_{HNO3}	lb-moles	0.51	
NO MW	Chemical Formula	MW_{NO}	lb/lbmole	30	
NO2 MW	Chemical Formula	MW_{NO2}	lb/lbmole	46	
Moles NO / Mole HNO3 ¹	Chemical Formula	$R_{NO/HNO3}$	Ratio	0.5	
Moles NO2 / Mole HNO3 ¹	Chemical Formula	$R_{NO2/HNO3}$	Ratio	0.5	
Amount NO fired off from one batch	$= N_{HNO3} * R_{NO/HNO3} * MW_{NO}$	$M_{NO/Batch}$	lbs	7.62	
Amount NO2 fired off from one batch	$= N_{HNO3} * R_{NO2/HNO3} * MW_{NO2}$	$M_{NO2/Batch}$	lbs	11.68	
Total amount NOx fired off from one batch	$= M_{NO/Batch} + M_{NO2/Batch}$	$M_{NOx/Batch}$	lbs	19.30	
Fired Batch Weight	$= M_{Base} + \text{Sum}(M_i)$	$M_{Batch, Fired}$	lbs		847

1. Assumed that 1 mole of nitric acid (HNO3) will make 0.5 moles of NO and 0.5 moles of NO2 (a 50/50 mix).

Step 2

Calculate total NO and NO2 fired off in the calcliner during event

Amount of fired product	Known amount	M_F	lbs	3,240
Fired batch amount	From Step 1	$M_{Batch, Fired}$	lbs	847
# Batches fired	$= M_F / M_{Batch, Fired}$	$N_{Batches}$	(no units)	3.83
Amount NO release from one batch	From Step 1	$M_{NO/Batch}$	lbs	7.62
Amount NO2 release from one batch	From Step 1	$M_{NO2/Batch}$	lbs	11.68
Total amount NO fired off	$= N_{Batches} * M_{NO/Batch}$	$M_{NO, Fired}$	lbs	29.14
Total amount NO2 fired off	$= N_{Batches} * M_{NO2/Batch}$	$M_{NO2, Fired}$	lbs	44.69
Total amount NOx fired off	$= M_{NO, Fired} + M_{NO2, Fired}$	$M_{NOx, Fired}$	lbs	73.83

Step 3

Calculate amount of NO2 absorbed in the F-1 scrubber and converted to nitric acid by water

Reaction: $3 NO_2 + H_2O \rightarrow 2 HNO_3 + NO$

Moles NO2 consumed by standard reaction	Chemical Formula	$N_{NO2, Consumed}$	moles	3
Moles NO generated by standard reaction	Chemical Formula	$N_{NO, Generated}$	moles	1
NO2 MW	Chemical Formula	MW_{NO2}	lb/lbmole	46
NO MW	Chemical Formula	MW_{NO}	lb/lbmole	30
Amount NO2 consumed by standard reaction	$= N_{NO2, Consumed} * MW_{NO2}$	$M_{NO2, Consumed}$	lbs	138
Amount NO generated by standard reaction	$= N_{NO, Generated} * MW_{NO}$	$M_{NO, Generated}$	lbs	30
NO generated / NO2 consumed ratio	$= M_{NO, Generated} / M_{NO2, Consumed}$	$R_{NO, Generated/NO2, Consumed}$	Weight Ratio	0.217
Total amount NO2 fired off	Step 2	$M_{NO2, Fired}$	lbs	44.69
% NO2 converted to nitric acid	Estimated	$\%_{NO2, Converted}$	%	75%
Amount NO2 converted by reaction with water	$= M_{NO2, Fired} * \%_{NO2, Converted}$	$M_{NO2, Fired, Converted}$	lbs	33.52
Amount NO generated from conversion of NO2	$= M_{NO2, Converted} * R_{NO, Generated/NO2, Consumed}$	$M_{NO, From Conversion}$	lbs	7.29

Step 4

Calculate the total amount NOx released during event

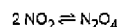
Total amount NO fired off	Step 2	$M_{\text{NO Fired}}$	lbs	29.14
Total amount NO ₂ fired off	Step 2	$M_{\text{NO}_2 \text{ Fired}}$	lbs	44.89
Amount NO ₂ converted by reaction	Step 3	$M_{\text{NO}_2 \text{ Fired Converted}}$	lbs	33.52
Amount NO generated from conversion of NO ₂	Step 3	$M_{\text{NO From Conversion}}$	lbs	7.29
Total NO _x released during event	$= M_{\text{NO Fired}} + M_{\text{NO}_2 \text{ Fired}} + M_{\text{NO}_2 \text{ Converted}} + M_{\text{NO From Conversion}}$		lbs	47.80
	From Conversion			

References:
Wikipedia NO₂
Wikipedia Ostwald Process

Main reactions [edit]

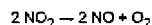
Basic thermal properties [edit]

NO₂ exists in equilibrium with the colourless gas dinitrogen tetroxide (N₂O₄).



The equilibrium is characterized by $\Delta H = -57.23 \text{ kJ/mol}$, which is exothermic. NO₂ is favored at higher temperatures, while at lower temperatures, dinitrogen tetroxide (N₂O₄) predominates. Dinitrogen tetroxide (N₂O₄) can be obtained as a white solid with melting point -11.2°C .^[9] NO₂ is paramagnetic due to its unpaired electron, while N₂O₄ is diamagnetic.

The chemistry of nitrogen dioxide has been investigated extensively. At 150°C , NO₂ decomposes with release of oxygen via an endothermic process ($\Delta H = 114 \text{ kJ/mol}$):

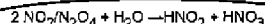


As an oxidizer [edit]

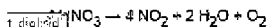
As suggested by the weakness of the N-O bond, NO₂ is a good oxidizer. Consequently, it will combust, sometimes explosively, with many compounds, such as hydrocarbons.

Hydrolysis [edit]

It hydrolyses to give nitric acid and nitrous acid:



This reaction is one step in the Ostwald process for the industrial production of nitric acid from ammonia.^[10] Nitric acid decomposes slowly to nitrogen dioxide, which confers the characteristic yellow color of most samples of this acid:



Properties	
Chemical formula	NO
Molar mass	30.01 g·mol ⁻¹
Appearance	Colourless gas
Density	1.3402 g dm ⁻³
Melting point	-164°C (-263°F , 109 K)
Boiling point	-152°C (-242°F , 121 K)
Solubility in water	0.0098 g/100ml (0 °C) 0.0056 g/100ml (20 °C)
Refractive index (n _D)	1.0002897



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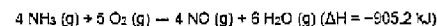
Ostwald process

From Wikipedia, the free encyclopedia

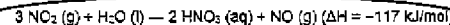
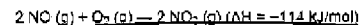
The **Ostwald process** is a chemical process for making nitric acid (HNO₃). Wilhelm Ostwald developed the process, and he patented it in 1902.^{[1][2]} The Ostwald process is a mainstay of the modern chemical industry, and it provides the main raw material for the most common type of fertilizer production. Historically and practically, the Ostwald process is closely associated with the Haber process, which provides the requisite raw material, ammonia (NH₃).

Description [edit]

Ammonia is converted to nitric acid in 2 stages. It is oxidized (in a sense "burnt") by heating with oxygen in the presence of a catalyst such as platinum with 10% rhodium, to form nitric oxide and water. This step is strongly exothermic, making it a useful heat source once initiated:^[3]



Stage two encompasses two reactions and is carried out in an absorption apparatus containing water. Initially nitric oxide is oxidized again to yield nitrogen dioxide.^[4] This gas is then readily absorbed by the water, yielding the desired product (nitric acid, albeit in a dilute form), while reducing a portion of it back to nitric oxide.^[5]



More conservative reaction – gives off an NO.

Timothy Anglin

From: HQS-PF-flidr-NRC@uscg.mil
Sent: Friday, November 06, 2015 2:47 PM
To: tim.anglin@basf.com
Subject: NRC#1132756

NATIONAL RESPONSE CENTER 1-800-424-8802

*** For Public Use ***

Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1132756

INCIDENT DESCRIPTION

*Report taken at 14:38 on 06-NOV-15
Incident Type: FIXED
Incident Cause: EQUIPMENT FAILURE
Affected Area:
Incident was discovered on 06-NOV-15 at 12:35 local incident time.
Affected Medium: AIR ATMOSPHERE

SUSPECTED RESPONSIBLE PARTY

Organization: BASF CORPORATION
ELYRIA, OH 44035

INCIDENT LOCATION

120 PINE ST. County: LORAIN
BUILDING 31
City: ELYRIA State: OH Zip: 44035
MANUFACTURING

RELEASED MATERIAL(S)

CHRIS Code: NTO Official Material Name: NITROUS OXIDE
Also Known As:
Qty Released: 47.6 POUND(S)

DESCRIPTION OF INCIDENT

CALLER IS REPORTING A MANUFACTURING PROCESS DIRECTED AT THE WRONG CONTROL DEVICE GENERATED NOX RELEASING IT INTO THE ATMOSPHERE.

INCIDENT DETAILS

Package: N/A
Building ID:
Type of Fixed Object: MANUFACTURING FACILITY
Power Generating Facility: NO
Generating Capacity:
Type of Fuel:
NPDES:
NPDES Compliance: UNKNOWN

IMPACT

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: NO Hospitalized: Empl/Crew: Passenger:
FATALITIES: NO Empl/Crew: Passenger: Occupant:
EVACUATIONS:NO Who Evacuated: Radius/Area:

Damages: NO

Closure Type	Description of Closure	Hours Closed	Direction of Closure
Air:	N		
Road:	N		Major Artery:N
Waterway:	N		
Track:	N		

Environmental Impact: NO

Media Interest: UNKNOWN Community Impact due to Material:

REMEDIAL ACTIONS

PROCESS SWITCHED OVER TO THE CORRECT CONTROL DEVICE.

Release Secured: YES

Release Rate:

Estimated Release Duration: 7 HOUR

WEATHER

Weather: SUNNY, 55°F

ADDITIONAL AGENCIES NOTIFIED

Federal:

State/Local:

State/Local On Scene:

State Agency Number:

NOTIFICATIONS BY NRC

CENTERS FOR DISEASE CONTROL (GRASP)

06-NOV-15 14:46

DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)

06-NOV-15 14:46

U.S. EPA V (MAIN OFFICE)

FBI CLEVELAND FIELD OFC (MAIN OFFICE)

06-NOV-15 14:46

FLD INTEL SUPPORT TEAM DETROIT (COMMAND CENTER)

06-NOV-15 14:46

NORTHEAST OHIO FUSION CENTER (FUSION COMMAND CENTER)

06-NOV-15 14:46

NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)

06-NOV-15 14:46

NOAA RPTS FOR OH (MAIN OFFICE)

06-NOV-15 14:46

NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)

06-NOV-15 14:46

OHIO DEPARTMENT OF HEALTH (OHDOH)

06-NOV-15 14:46

OH STRATEGIC ANALYSIS AND INFO CTR (OHIO COMMAND CENTER)

06-NOV-15 14:46

CINCINNATI REG. TERR. EARLY WARNING (MAIN OFFICE)

06-NOV-15 14:46

REPORTING PARTY (RP SUBMITTER)

06-NOV-15 14:46

SECTOR BUFFALO (MSU CLEVELAND)

06-NOV-15 14:46

SECTOR BUFFALO (INTEL OFFICE)

06-NOV-15 14:46

OFFICE OF ENV. POLICY & COMPLIANCE (MAIN OFFICE)

06-NOV-15 14:46

OH EPA ATTN: DUTY OFFICER (MAIN OFFICE)

06-NOV-15 14:46

USCG DISTRICT 9 (COMMAND CENTER)

06-NOV-15 14:46

ADDITIONAL INFORMATION

*** END INCIDENT REPORT #1132756 ***

Report any problems by calling 1-800-424-8802

PLEASE VISIT OUR WEB SITE AT <http://www.nrc.uscg.mil>



We create chemistry

October 19, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, TriMer Scrubber Unit Malfunction October 8, 2015

Dear Mr. Becker,

Please find enclosed the report on the October 7, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 5 minutes. The release began at approximately 0700 and ended at 0705.
3. The NOx discharged out of Rotary Calciners #1 (P010) and #4 (P009).
4. It is calculated that 0.5 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the sodium sulfide tank becoming empty.
6. To end the release site personnel added sodium sulfide to the TriMer scrubber.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a large, sweeping loop at the end.

Timothy Anglin

Sr. EHS Specialist



September 28, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, TriMer Scrubber Unit Malfunction August 29, 2015

Dear Mr. Becker,

Please find enclosed the report on the August 29, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 40 minutes. The release began at approximately 0726 and ended at 0805.
3. The NOx discharged out of Rotary Calciner #4 (P009).
4. It is calculated that 7.5 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the sodium sulfide tank becoming empty.
6. To end the release site personnel added sodium sulfide to the TriMer scrubber.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

Timothy Anglin

Sr. EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

June 12, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Selective Catalytic Reduction Unit Malfunction June 10, 2015

Dear Mr. Becker,

Please find enclosed the report on the June 10, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 20 minutes. The release began at approximately 0922 and ended at 0842.
3. The NOx discharged out of Rotary Calciner #3 (P103).
4. It is calculated that less than 1 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of an exhaust blower fault failure in the SCR Unit.
6. To end the release site personnel shut down the calciner.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a large, sweeping "T" and a long, horizontal stroke.

Timothy Anglin
Sr. EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

June 11, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, Selective Catalytic Reduction Unit Malfunction May 21, 2015

Dear Mr. Becker,

Please find enclosed the report on the May 21, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 10 minutes. The release began at approximately 0830 and ended at 0840.
3. The NOx discharged out of Rotary Calciner #3 (P103).
4. It is calculated that less than 1 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of a fault failure in the SCR Unit.
6. To end the release site personnel shut down the calciner.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read 'Timothy Anglin', with a stylized flourish at the end.

Timothy Anglin
Sr. EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

June 11, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: PM Release, Dust Collector Malfunction May 17 and 18, 2015

Dear Mr. Becker,

Please find enclosed the report on the May 17, 2015 PM release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 20 minutes. The first release began on May 17 at approximately 0245 and ended at 0600. The second occurrence was at 1100 on May 18 and continued for approximately ten minutes.
3. The particulate matter (PM) discharged out of Rotary Calciner #5 (P080) dust collector.
4. It is calculated that less than 5 pounds of PM was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of a filter becoming clogged.
6. To end the release site personnel shut down the calciner. The filters were cleaned in the dust collector.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

Timothy Anglin
Sr. EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

May 20, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Particulate Matter Release, Dust Collector Malfunction May 1, 2015

Dear Mr. Becker,

Please find enclosed the report on the April 6, 2015 PM release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 20 minutes. The release began at approximately 0200 and ended at 0220.
3. The particulate matter (PM) discharged out of Copper Calciner #1 (P006) main draft dust collector.
4. It is calculated that less than 1 pounds of PM was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of incorrect filter being placed into the dust collector.
6. To end the release site personnel shut down the calciner. The correct filters were installed in the dust collector.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a large, sweeping "T" and a long, horizontal stroke.

Timothy Anglin
Sr. EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

April 8, 2015

Mr. Tony Becker
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, SCR Malfunction April 6, 2015

Dear Ms. McPhee,

Please find enclosed the report on the April 6, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 30 minutes. The release began at approximately 1300 and ended at 1330.
3. The NOx discharged out of Rotary Calciner #3 (P103) SCR NOx control unit.
4. It is calculated that less than 8.1 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of the SCR burner shutting off at 1447 relighting at 1455 and then shutting off again at 1501. At this time the burner could not be relit.
6. To end the release site personnel shut down the calciner RC #3 (P103). The cause of the burner failure is still under investigation.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin". The signature is stylized with a long horizontal stroke and a loop at the end.

Timothy Anglin
Sr. EHS Specialist

Cc: Lorain County Emergency Coordinator

material) in the dried feed, $958 \text{ lbs} / (2600 \text{ lbs} + 461 \text{ lbs} + 124 \text{ lbs}) = 0.301$ (third paragraph). NO_3 lost is $(0.301 - 0.197) * 1834 \text{ lbs} = 189.5 \text{ lbs NO}_3$.

To find lbs of NO_x generated, multiply NO_3 lbs by the ratios of the molecular weights of NO_x to NO_3 , or $189.5 \text{ lbs NO}_3 * 38 (\text{MW NO}_x) / 62 (\text{MW NO}_3) = 116 \text{ lbs NO}_x$ generated. The MW ratio calculation takes into account the loss of oxygen to the metal oxides in the product.

The CTO scrubber certainly got the vast majority of it. The stack was only slightly yellow most of the time and dark yellow maybe 15-20 minutes that I saw. Even then, the CTO was working and taking most of the NO_x out. I have to believe that at least 95% of the NO_x was removed and $116 \text{ lbs NO}_x * (1 - 0.95) = 5.8 \text{ lbs NO}_x$ released to the atmosphere.

For a mass balance on the stack, first estimate stack air flow. Stack diameter is 1 ft and typical gas flow is 100 ft/s (6000 ft/minute). Stack air flow is therefore $6000 \text{ ft/min} * (1 \text{ ft})^2 * 3.14 / 4 = 4712 \text{ CFM}$ which can be rounded up to 5000 CFM.

Conservatively assuming 30 minutes of 500 ppm NO_x (0.05%), $5000 \text{ CFM} * 30 \text{ minutes} * 0.0005 = 75 \text{ CF NO}_x$. NO_x density at an assumed 200 F is 0.079 lb/CF (ideal gas law) so total lbs released would be $75 \text{ CF} * 0.79 \text{ lb/CF} = 5.9 \text{ lb NO}_x$.

The previous method of calculating lbs air was off by a factor of 10, $5000 \text{ CFM} * 0.07 \text{ lb/CF} = 350 \text{ lbs/minute}$ (not 35 lbs/minute). In any event, since ppm NO_x is measured in a volume basis, the above method is correct.

Bill



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

April 1, 2015

Ms. Christine McPhee
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx Release, SCR Malfunction March 27, 2015

Dear Ms. McPhee,

Please find enclosed the report on the March 27, 2015 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was approximately 20 minutes. The release began at approximately 1300 and ended at 1320.
3. The NOx discharged out of Rotary Calciner #3 (P103) SCR NOx control unit.
4. It is estimated that less than 2 pounds of NOx was released into the air. If additional information on the amount of material released becomes available, it will be forwarded to your office.
5. The release was the result of overfeed of material to the calciner, which sent NOx to the SCR in excess of its operating capacity.
6. To end the release site personnel shut down the calciner scrubber. The cause of overfeed was determined and corrective action was implemented.
7. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 440-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Anglin".

Timothy Anglin
Sr. EHS Specialist

Cc: Lorain County Emergency Coordinator



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

September 20, 2014

Ms. Christine McPhee
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: NOx release, September 18, 2014

Dear Ms. McPhee,

Please find enclosed the report on the September 18, 2014 NOx release.

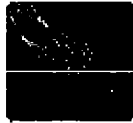
1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 60 minutes. The release began at 0230 and ended at 0250.
3. The NOx was discharged out of the Rotary Calciner #1 P010.
4. Approximately 0.5 pounds of NOx was released into the air.
5. The release was the result of the sodium sulfide pump to the TriMer Scrubber not being turned on.
6. To end the release site personnel turned the sodium sulfide pump on.
7. No evacuation of the surrounding community was necessary.
8. Nitric oxide, a component of NOx is listed as an extremely hazardous substance.

If you have any questions or require any further information, please do not hesitate to call me at 216-702-5479.

Sincerely,

A handwritten signature in black ink, appearing to read 'Timothy Anglin', with a large, stylized flourish at the end.

Timothy Anglin
EHS Specialist



Follow Up Malfunction Report

Tim Anglin to: McPhee, Christine

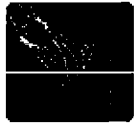
Cc: Sandy Kowaleski, Dean R Gadoury

04/29/2013 02:44 PM

As a follow up to the phone message I left for you, here is the information on the equipment malfunction that occurred on April 27, 2013:

Facility: BASF Corp., Elyria, OH
Facility ID #: 02-47-04-0195
Source #: P009
Malfunction: Dust collected experienced a malfunction allowing material to pass through onto the roof.
Length of Malfunction: Less than one hour
Amount Released: Less than 10 pounds, limited to a ten foot area around the base of the stack
Equipment Status: Repaired
If you have any question or require additional information, please call me at 440-329-2568

Tim Anglin
EHS Specialist



Fw: Malfunction Report
Tim Anglin to: Christine.McPhee
Cc: Dean R Gadoury, Sandy Kowaleski

05/20/2013 08:42 AM

Correction to report below. It occurred on May 17, 2013.

----- Forwarded by Tim Anglin/EB-NAFTA/BASF on 05/20/2013 08:41 AM -----

From: Tim Anglin/EB-NAFTA/BASF
To: Christine.McPhee@epa.state.oh.us
Cc: Dean R Gadoury/NA/BASF@BASF, Sandy Kowaleski/NA/BASF@BASF
Date: 05/20/2013 08:40 AM
Subject: Malfunction Report

Below is information on a equipment malfunction that occurred on May 16, 2013:

Facility: BASF Corp., Elyria, OH
Facility ID #: 02-47-04-0195
Source #: P102
Malfunction: The SCR experienced a burner failure which allowed NOx to pass through.
Length of Malfunction: 15 minutes
Amount Released: Less than 1 pound.
Equipment Status: Repaired

If you have any question or require additional information, please call me at 440-329-2568

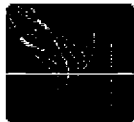


Malfunction Report, BASF Elyria
Tim Anglin to: Christine.McPhee
Cc: Dean R Gadoury, Sandy Kowaleski

05/16/2013 08:46 AM

Below is information on a equipment malfunction that occurred on May 16, 2013:

Facility: BASF Corp., Elyria, OH
Facility ID #: 02-47-04-0195
Source #: P006
Malfunction: The calciner draft dust collector experienced a malfunction which allowed particulate matter to pass through.
Length of Malfunction: 60 minutes
Amount Released: Less than 5 pounds.
Equipment Status: Repaired
If you have any question or require additional information, please call me at 440-329-2568



Malfunction Report; BASF Elyria, OH

Tim Anglin to: Christine.McPhee

Cc: Sandy Kowaleski, Dean R Gadoury

05/07/2013 08:28 AM

Below is information on a equipment malfunction that occurred on May 6, 2013:

Facility: BASF Corp., Elyria, OH
Facility ID #: 02-47-04-0195
Source #: P102 and P103
Malfunction: The CTO/SCR experienced a pump malfunction which allowed NOx to pass through.
Length of Malfunction: Less than five minutes
Amount Released: Less than 5 pounds.
Equipment Status: Repaired
If you have any question or require additional information, please call me at 440-329-2568



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

February 23, 2013

Ohio EPA, DERR—ER
Lazarus Government Center
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049
ATTN: ER Records Mgmt.

Re: NOx release, January 26, 2013

Dear Ms. McPhee,

Please find enclosed the report on the January 23, 2013 NOx release.

1. The release occurred at the BASF Elyria Plant, 120 Pine Street, Elyria, OH.
2. The duration of the release was 15 minutes. The release began at 3:04 pm and ended at 3:19 pm.
3. The NOx was discharged out of the F1 scrubber stack.
4. Approximately 30 pounds of NOx was released into the air.
5. The release was the result of a mechanical failure of the F1 Scrubber.
6. To end the release site personnel rerouted the calciner emissions to another control device.
7. No evacuation was necessary.
8. Nitric oxide, a component of NOx is listed as an extremely hazardous substance.

If you have any questions or require any further information, please do not hesitate to call me at 216-702-5479.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Anglin", with a long horizontal stroke extending to the right.

Timothy Anglin
EHS Specialist



The Chemical Company

BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

August 12, 2014

Ms. Christine McPhee
Ohio EPA, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087-1969

Re: Malfunction Reports

Dear Ms. McPhee,

In an effort to continue improve the accuracy and completeness of the reporting requirements under the current Title V permit, BASF has undertaken a review of incident reports in 2013 and 2014 to date. In this review seven incidents were not correctly classified as malfunctions. Please find reports for those seven incidents below:

February 15, 2013

1. The duration of the release was 5 minutes. The release began at 1200.
2. The NOx was discharged out of the SCR scrubber stack.
3. Approximately 2 pounds of NOx was released into the air.
4. The release was the result of a mechanical failure of the SCR Scrubber.
5. To end the release site personnel shut down Rotary Calciner #2 (P102).
6. No evacuation of the surrounding community was necessary.
7. Nitric oxide, a component of NOx is listed as an extremely hazardous substance.

April 17, 2013

1. The duration of the release was 5 minutes. The release began at 1500.
2. The particulate matter was discharged out of the dust collector for copper calciner #2 (P095).
3. Approximately 0.2 pounds of particulate matter was released into the air.
4. The release was the result of a mechanical failure of the dust collector.
5. To end the release site personnel shut down Copper Calciner #2 (P095).
6. No evacuation of the surrounding community was necessary.



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April 21, 2013

1. The duration of the release was 2 minutes. The release began at 1100.
2. The particulate matter was discharged out of the dust collector for copper calciner #1 (P006).
3. Approximately 0.2 pounds of particulate matter was released into the air.
4. The release was the result of a mechanical failure of the dust collector.
5. To end the release site personnel shut down Copper Calciner #1 (P006).
6. No evacuation of the surrounding community was necessary.

May 19, 2013

1. The duration of the release was 2 minutes. The release began at 1230.
2. The particulate matter was discharged out of the dust collector for Building 10 Mixer.
3. Approximately 0.1 pounds of particulate matter was released into the air.
4. The release was the result of a mechanical failure of the bin vent.
5. To end the release site personnel shut down the mixer.
6. No evacuation of the surrounding community was necessary.

July 29, 2013

1. The duration of the release was 10 minutes. The release began at 0800.
2. The nitric acid vapor was discharged out of the tank vent.
3. Approximately 1 pounds of vapor was released into the air.
4. The release was the result of a mechanical failure of throttle vent.
5. To end the release site personnel opened the vent.
6. No evacuation of the surrounding community was necessary.

August 6, 2013

1. The duration of the release was 5 minutes. The release began at 2200.
2. The particulate matter was discharged out of the dust collector for copper calciner #1 (P006).
3. Approximately 0.5 pounds of particulate matter was released into the air.
4. The release was the result of an improperly install filter cartridge in the dust collector.
5. To end the release site personnel shut down Copper Calciner #1 (P006) and correctly installed the cartridge.
6. No evacuation of the surrounding community was necessary.



The Chemical Company

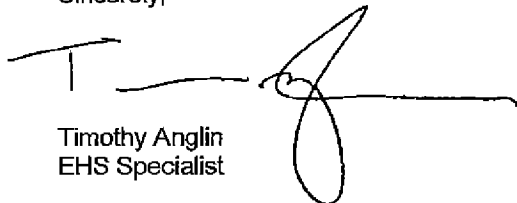
BASF Corporation
120 Pine Street
Elyria, OH 44035
440-329-2568

February 10, 2014

1. The duration of the release was 5 minutes. The release began at 0915.
2. The particulate matter was discharged out of the F2 scrubber.
3. Approximately 1 pound of particulate matter was released into the air.
4. The release was the result of a mechanical failure due to extreme temperatures.
5. To end the release site personnel shut down the general catalyst strike tanks (P026).
6. No evacuation of the surrounding community was necessary.

If you have any questions or require any further information, please do not hesitate to call me at 216-329-2568.

Sincerely,

A handwritten signature in black ink, appearing to be 'T. Anglin', with a large, stylized loop at the end.

Timothy Anglin
EHS Specialist

